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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/596,101

05/30/2006

Sergio Barcelos

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07/07/2008

FELIX L. FISCHER, ATTORNEY AT LAW

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SUITE 204

SOLVANG, CA 93463

EXAMINER

TURNER, SAMUEL A

ART UNIT

PAPER NUMBER

2877

NOTIFICATION DATE

DELIVERY MODE

07/07/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

felixfischer@fischeriplaw.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/596,101	<b>Applicant(s)</b> BARCELOS ET AL.	
	<b>Examiner</b> SAMUEL A. TURNER	<b>Art Unit</b> 2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 May 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Preliminary Amendment***

The preliminary amendment filed 30 May 2006 has been entered.

### ***Abstract***

The abstract of the disclosure is objected to because the abstract must be limited to single paragraph on a separate sheet within the range of 50 to 150 words. Correction is required. See MPEP § 608.01(b).

### ***Drawings***

The drawings received on 30 May 2006 are accepted by the Examiner.

### ***Claim Rejections - 35 USC § 112, second paragraph***

The following is a quotation of the second paragraph of 35 U.S.C. § 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-13 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-13 are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

Claim 1 includes a parts list with no connection between the elements listed. The structure of the system is therefor indefinite because the scope of the claimed

structure cannot be determined. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. One example of a narrow range claimed with a broad range is exemplary language found in parentheses. In the present instance, claim 1 recites the broad recitation “one or more sources of optical test signal”, and the claim also recites (tunable laser source) which is the narrower statement of the range/limitation. In claim 1, the phrase “can be identical or distinct” is indefinite because the limitation is only suggested and not positively claimed. The limitation is considered indefinite since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Claim 1 is indefinite because the language of the phrase “the optical signal traversing at least one of said paths of interferometer being phase- and/or frequency-modulated” only suggests a means for modulating in one of the paths. Therefor the claim does not clearly set forth the metes and bounds of the patent protection desired. In claim 1 there is no antecedent basis for “the test and reference optical signals” and “at least one of said paths of interferometer”. Antecedent basis is only provided for an optical test signal.

Claim 2 is indefinite because the language of the claim only suggests the steps for which patent protection desired. Therefor the claim does not clearly set forth the metes and bounds of the patent protection desired. The claim appears to

be defined by structure instead of positively claimed steps. Is the claim directed to a step of using, of the steps of inserting a DUT, inserting one or more modulators, summing the output signals, and translating the heterodyned signals ?

Claims 3-10 fail to define any positively claimed step.

Claims 4 and 5 are directed to a capability instead of a positively claimed step.

The parentheses in claims 6 and 9 includes exemplary language which defines both broad and a narrow ranges and is therefor indefinite.

With regard to claim 11, the phrase “the optical interferometer can be comprised of different physical paths for propagation and conduction of the optical signal” is indefinite because the limitation is only suggested and not positively claimed. The limitation is considered indefinite since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. One example of a narrow range claimed with a broad range is defined by the use of the term “such as”. In the present instance, claim 11 recites the broad recitation the different physical paths for propagation and conduction of the optical signal, and the claim also recites optical fibers, planar waveguides, and free space optics which is the narrower statement of the range/limitation.

The phrase “such as” in claims 12 and 13 includes language which defines both broad and a narrow ranges and is therefor indefinite. In claims 12 and 13 there is no clear antecedent basis for “the arms of the interferometer”.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-9, and 11-13 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Ziegler et al(WO 03/060458).

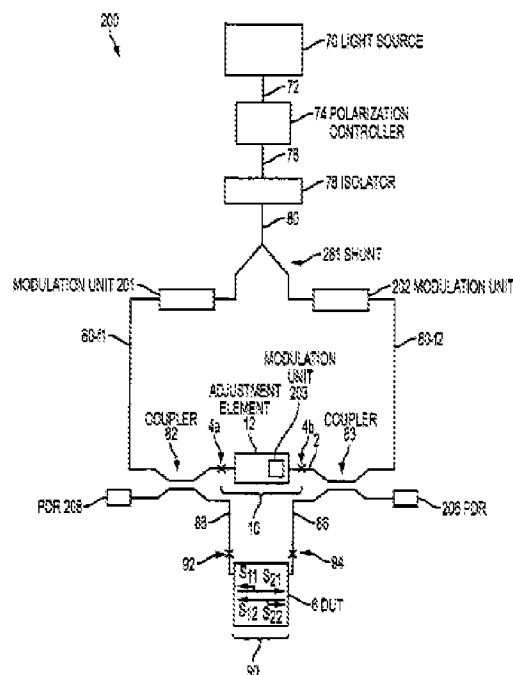


FIG. 2

**The following rejection is based on the claims as understood.**

With regard to claim 1, Ziegler et al teach a system for measurement of optical parameters and characterization of multiport optical devices(**Fig. 2**) constituted by:

process control systems, one or more sources of optical test signal (tunable laser source), optical circuit including optical fiber and several other optical components arranged so as to constitute an interferometric optical arrangement, optical connectors, optoelectronic interfaces, photodetectors, analogical electronic circuits, digital electronic circuits for digital signal processing and electronic circuits for data acquisition(see page 3, lines 1-4; page 5, lines 11-28; **Fig. 2**),

characterized by the fact that the test and reference optical signals traverse paths with any lengths, that can be identical or distinct, the optical signal traversing at least one of said paths of interferometer being phase- and/or frequency-modulated(**Fig. 2; 201,202**).

With regard to claim 2, Ziegler et al teach a method for measurement of optical parameters and characterization of multiport optical devices based in optical interferometry concept,

using two optical paths in which in one of these the device under test (DUT) is inserted, and in which one or more optical phase / frequency modulators are inserted(**page 5, lines 11-28**),

characterized by the fact that the signals of both arms are summed at a same photodetector that translates to the electric domain the heterodyning of the optic signals, which contain the information of the optical characteristics of the DUT(page 5, lines 27-28).

As to claim 3/2, Ziegler et al teach a system the operates with a wavelength sweeping of the tunable laser source(page 3, line 20).

As to claim 4/2, Ziegler et al teach simultaneous interferometric characterization in reflection and transmission of all ports of multi-port optical devices using phase and/or frequency optical modulators in the arms of the interferometer(page 5, lines 11-28).

As to claim 5/4, Ziegler et al teach determining the polarization characteristics of the DUT for the two orthogonal polarization modes of light, the polarization discrimination being provided by distinct phase and/or frequency modulators installed in the interferometer arms(page 5, lines 23-28).

As to claim 6/2, Ziegler et al teach that the transfer of the optical signals between the diverse ports of the DUT is described by means of the Optical "S"-Parameters where each "S<sub>xy</sub>" parameter is represented using the formalism of Jones (Jones matrix) and/or the formalism of Muller (Muller matrix) and where all the determinations of the optical characteristics of the DUT (bandwidth, phase, time delay, chromatic dispersion, 2nd order chromatic dispersion, reflectance, reflection coefficient, transmittance of the port "y" to the port "x" and vice versa,



transmission coefficient of the port "y" to the port "x" and vice versa, insertion loss, polarization dependent loss, polarization mode dispersion (DGD/PMD), 2nd order DGD, etc.) are based on said "Sxy" parameters(**page 5, lines 23-28**).

As to claim 7/4, Ziegler et al teach that measurement of the different optical parameters in the different propagation paths is furnished by the arrangement of the optical interferometric circuits according to different optical configurations, each individual configuration corresponding to the measurement of a specific optical "S"-parameter of interest(**page 5, lines 11-28**).

As to claim 8/7, Ziegler et al teach that the optical interferometric circuitry is equivalent to the overlapping several individual optical configurations related to the simultaneous measurement of several optical "S"-parameters(**page 5, lines 27-28**).

As to claim 9/4, Ziegler et al teach that the complete determination of the transference matrix ("S"- parameter matrix) of multi-port optical devices is based on the concurrent use of optical techniques (interferometry, polarization diversity, phase and/or frequency optical modulation, optical beam coupling and division, generation of optical signal, signal beating, photodetection etc.), usual analogical and digital electronics techniques (generation of modulating signals, amplification, analogical filtering, digital filtering, "analogical Lock-in" technique, digital "lock-in" technique, analogical signal processing, digital signal processing, FFT techniques - "Fast Fourier Transform", digital communication etc.) and specific software

(software for data acquisition, data analysis, processing of results, graphic user interface software etc.)(see page 3, lines 1-4; page 5, lines 11-28; Fig. 2).

As to claim 11/1, Ziegler et al teach that the optical interferometer can be comprised of different physical paths for propagation and conduction of the optical signal, such as: optical fibers, planar waveguides, and free space optics (FSO)(see page 3, lines 1-4; page 5, lines 11-28; Fig. 2).

As to claim 12/1, Ziegler et al teach the use of optical phase and/or frequency modulators in the arms of the interferometer, said modulators being constructed according to using any known possible technologies, such as techniques of refractive index change, acusto-optic effect in crystals, length propagation changes, and electron-optic effect(Fig. 2; 201,202).

As to claim 13/11, Ziegler et al teach the use of optical phase and/or frequency modulators in the arms of the interferometer, said modulators being constructed according to using any known possible technologies, such as techniques of refractive index change, acusto-optic effect in crystals, length propagation changes, and electron-optic effect(page 5, lines 11-22).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention

was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. § 103(c) and potential 35 U.S.C. § 102(e), (f) or (g) prior art under 35 U.S.C. § 103(a).

Claim 10 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Ziegler et al(WO 03/060458) in view of Baney et al(2003/0174338).

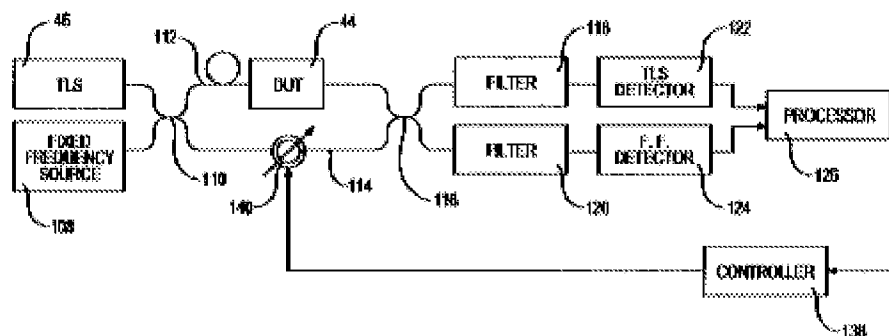


FIG. 10

The following rejection is based on the claims as understood.

As to claim 10/4, Ziegler et al **fail to teach** an interferometric optical circuits stabilization against thermal variations or mechanical vibration is provided by means of the use of a second interferometer operating within the optical test

circuits, functioning in a wavelength falling outside the test wavelength band, operating according to the WDM (wavelength division multiplexing) techniques.

Baney et al teach the addition of a fixed source(108) outside the bandwidth of the tunable laser source(46)(**paragraph[0055]**), a coupler(116) with filters(118,120) that separate the fixed source from the tunable laser source, and a processor(128) connected to a controller(138) and a piezoelectric cylinder that offsets fluctuations due to vibrations(**paragraph[0063]**). Compensation for vibration can also be performed by electronic filtering(**paragraph[0055]**) and computer processing(**paragraphs[0056]-[0058]**).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ziegler et al by adding a fixed source, outside the bandwidth of the tunable laser source, at coupler 281; and coupling out the fixed frequency signals at the detectors 206 and 208 with filters. The singles can alternatively be filtered and processed electronically.

The motivation for this modification is found in Baney et al which teaches the advantages of removing vibrational noise from the DUT measurements to improve single quality(see Baney et al, figures 8-11).

### ***Relevant Prior Art***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Englund et al(6,940,601), see figure 4; Kido(6,980,288), see

figures 5-7, 11, and 12; Szafraniec(7,075,659), see figures 1 and 3C; and Stolte et al(2003/0020900), see figures 2-4.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel A. Turner whose phone number is 571-272-2432.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr., can be reached on 571-272-2800 ext. 77.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Samuel A. Turner/  
Primary Examiner  
Art Unit 2877